

Puget Sound Steelhead Recovery Team
January 23, 2015 Meeting Summary

Decisions and Actions from Meeting

Decision
Accepted December meeting summary as final.
Updated the Biological Background section of the Recovery Plan outline.

Action	Assignment
1. Frame up questions from watershed assessment discussion for February 24 th meeting.	Elizabeth Babcock, Watershed Template Workgroup
2. Incorporate edits to the Biological Background section.	Elizabeth Babcock & Claire Turpel
3. Check with Bill McMillan to re-organize the Freshwater Entry and Spawning (Table 1, page 22) by MPG and make sure he's comfortable sharing the table with local biologists.	Jeff Hard
4. Double-check the Nisqually, upper Skagit, and middle fork Nooksack areas of the new DPS map.	Elizabeth Babcock
5. Update the Recovery Team workplan.	Elizabeth Babcock & Claire Turpel
6. Continue meeting; update on progress at next Recovery Team meeting.	Workgroups

Welcome, Announcements, & Old Business – Bob Wheeler, facilitator, opened the meeting and led introductions (please see the end for a list of participants). Elizabeth Babcock welcomed participants and explained that Bob from Triangle Associates will facilitate some Puget Sound Steelhead Recovery Team (Recovery Team) meetings, especially those that require Elizabeth to participate fully as the NMFS representative without also facilitating.

Bob reviewed the draft agenda. The focus of this meeting was a presentation from Tim Beechie on the watershed assessment work he has done around the Puget Sound. There were no changes to the draft agenda, but it was suggested that if time allowed, Tim could also present about Puget Sound status and trends monitoring work.

December draft meeting summary – the Recovery Team reviewed the draft meeting summary and accepted it as final with no changes.

Presentation: Watershed Assessment Approaches – Tim Beechie from the Northwest Fisheries Science Center presented to the Recovery Team about the work he has been doing in the Puget Sound on watershed protocols. This work could aid the Recovery Team in getting local data on steelhead populations.

Tim's presentation included the following points:

- There are two main objectives that the watershed assessments focus on: to identify habitats that limit steelhead population recovery, and to identify restoration scenarios that provide the largest benefit to steelhead populations. These can be done through the habitat capacity or life cycle models.
- Watershed assessments help identify what is impairing recovery; this allows the Recovery Team to then brainstorm alternatives for achieving recovery.
- Three levels influence recovery: landscape processes control habitat conditions, which in turn control biota. Human activity can affect all three. Two questions point to the relationships between these three levels:
 - How have habitats changed and altered biota? (This corresponds with the habitat conditions – biota relationship.)
 - What are the root causes of habitat and biological change? (This corresponds with the landscape processes – habitat conditions relationship.)
- There are five main habitat areas studied in the habitat analysis:
 - Mainstem river(s)
 - Tributaries
 - Side channels (including floodplain habitats)
 - Distributary channels (delta habitats)
 - Beaver ponds and lakes (not a lot of information because there has been so much loss; can be mostly estimates rather than hard data)
- For each habitat area, change is measured by:
 - Quantifying historical and current habitat availability,
 - Estimating historical and salmonid current production capacity, and then
 - Calculating change in salmonid production capacity.
- To answer the question about habitat change and altered biota, there are several components involved in measuring change:
 - First, one assesses the potential habitat capacity, which includes can be estimated in three basic ways:
 - Historical reference,
 - Contemporary reference, and
 - Models and theory
 - Historical info is usually good for large features like mainstems and side channels; contemporary reference sites are used when historical information is unavailable (e.g., for habitat data in small tributaries), and models are used when there are no historical data or contemporary reference site data.
 - Second, one assesses the current condition, which is relative to the potential.
 - Notes:
 - Comparing the historical information to the contemporary information can inform the model assumptions.
 - In measuring change, we can be limited by what the historical information includes.
 - In one example from the Skagit, about 80% of the habitat in delta areas has been lost.

- Once all the habitat change data is in a database, it can be summarized and analyzed fairly smoothly.
 - The data summary/analysis helps quantify the importance of each habitat loss to the species of interest. This in turn helps identify where to focus money/effort for restoring habitat.
 - There are two types of summaries: from the life cycle perspective, and from the causal perspective. Both are watershed specific, highlighting which restoration actions will provide the largest fish improvements, and which causes of habitat loss most need to be addressed through restoration.
- The root causes of habitat loss include:
 - Hydrologic change
 - Sediment supply change
 - Change in riparian condition and function
 - Change in floodplain connectivity
 - Blockages to fish passage
- Sediment supply change requires knowing the potential, including the background rate. This identifies where the problem(s) are.
- Once the causal process changes are identified, all can be mapped for one area and turned into an aggregate score map. Tim's presentation shows an example of such a map, which is the answer to the relationship between landscape processes and habitat conditions.
- When developing a restoration strategy, Tim suggested considering the following questions:
 - What are the recovery goals for the population(s)?
 - It was mentioned that the Technical Recovery Team's goals could be used for this step.
 - Which restoration alternatives can achieve those goals?
 - Once the alternatives are identified, a strategy can be developed from the preferred alternatives. A strategy can be put into a map format which is a simple, clear way to show high-, medium-, and low-priority areas for recovery. A color-coded map can also be an easy way to communicate with policy makers and funders about priorities.
- Tim reviewed an example from the Chinook recovery experience that demonstrated how to develop restoration alternatives and a restoration strategy.
 - For the Chinook example, information was used to build a scenario for each stream reach, assuming few side channels.
 - It was noted that if restoration alternatives are identified for steelhead that do not show high confidence for recovery, it might be hard for people to participate in the collective process of steelhead recovery.
 - The Recovery Team discussed that there will be a difference if the goal is to get all 32 DIPs to viability as opposed to most of them. For Chinook, the recovery team made a recovery assumption that all populations would get to viability.
 - With 32 DIPs divided into three MPGs, the TRT identified that each MPG can still be viable without all its DIPs being viable. If a DIP fails to be viable, it would put a greater strain on the other DIPs to maintain viability for the MPG to maintain viability.

- A Recovery Team member noted that there are key DIPs more important than others for MPGs. If those are identified, the Team could target investment in recovering those DIPs more than others, especially as resources are strained.

Discussion

- One Recovery Team member noted the importance for incorporating climate change into steelhead recovery; while there was not a robust discussion about this there was no initial opposition to including climate change in the model assumptions.
- The approach used in this presentation is from a paper first published about twenty years ago. Few similar analyses have been done since then, in part due to the challenge sometimes associated with getting support for collecting data.
- GLO data would not be that helpful in getting more information about beaver ponds because that information does not exist.
- The ecosystem approach for recovery planning requires choosing what data you want to optimize. Using an umbrella species sometimes works for recovery planning, though not as well for salmonids.
- The Recovery Team discussed early on that there should be no need to collect data that already exists, even for another species. For example, if there is already habitat data collected for other salmonids, we could use that for steelhead recovery planning. That data might exist from Tim's work and also with local biologists.
 - It was noted that the habitat and species responses will likely differ between each river system.
- The detailed information watershed-by-watershed probably exists already with local biologists, which could save a lot of time and capacity. Tim noted that typically, information on the tributaries and beaver ponds exists, the mainstem information may be lacking, and the distributary channels and side channels might need some work to turn geomorphic information into habitat conditions.
 - It was noted that for areas without one of those features (e.g., on the Kitsap Peninsula where there are no large rivers), you use the same approach just without the component that doesn't exist.
- The Recovery Team noted that the work to do watershed assessments relates to the work of the Watershed Template Workgroup. The Team can decide how much they want to use watershed assessments versus the life cycle model, or both. The Team identified information needed to make this decision, including:
 - Time and cost estimates, in addition to the timeline for completion.
 - Trade-offs: are there other alternatives beyond the EDT model and watershed assessments? What type of guidance does the Recovery Team want to give to the watersheds, and on what technical basis?
 - A local biologist mentioned that his watershed is hoping to have some goals set by the Recovery Team that gives the watershed a target to work toward.
 - A lot of data inputs could increase the likelihood for errors. But if the areas of uncertainty are noted, the Team can know where more information/time is needed. Tracking the confidence of inputs is important.

- Timeline flexibility: if is NOAA flexible on extending the recovery planning timeline beyond 2017, there might be more room to do these watershed assessments.
- Information to provide to the watershed groups, including:
 - Sequencing
 - Targeted strategy based on DIPs
 - Which populations are key (life cycle modeling could help identify these)
 - How do (would) co-managers at the watershed level think about watershed assessments?
 - How to obtain data
 - Uncertainty
 - A stronger message on why this is needed, possibly (especially for funding)
- It was suggested that these questions should be framed up with more information, for discussion at the next Recovery Team meeting. The Watershed Template Workgroup could help, too.
- A Recovery Team member noted that having the co-managers participate in the prioritization process is key.
- The Team noted challenges, including:
 - Getting the best available data. That means getting the best historical information that is available, and surveying several areas for the current information.
 - Data for rivers and floodplains can be gathered mostly from aerial photographs. But tributaries will likely have to be surveyed by foot since they are usually hard to see from the air.
 - Tribal habitat biologists will likely support this overall approach though getting the work done with other obligations might be a challenge.

Presentation: Puget Sound Status & Trends Monitoring – Tim also presented on the work by the status & trends monitoring team, of which he is a part. The presentation and discussion are below:

- The status & trends monitoring program is meant to help with 5-year status reviews to get trends in habitat over time. There are four main habitat areas, split into two categories:
 - Marine: nearshore and deltas
 - Freshwater: mainstem rivers (down to 20' bankfull width) and floodplains
- The program started in early summer 2014, with a budget of \$350,000 and used a hierarchical monitoring design. The goal was to have three to five metrics per habitat area to see if there is a trend in habitat improvement over time.
- They developed a monitoring strategy, sample design, and a method to select monitoring metrics – which included using workshops of six to eight people to identify potential metrics. They developed protocols for mainstem and floodplain areas, and tested protocols at about 21 sites before the field season ended.
- The goal is to summarize data at the MPG level in addition to the ESU level.
- The hierarchical monitoring strategy includes three components, which can be linked to be able to scale up or down depending on needs:
 - Satellite measures – coarse resolution and complete coverage. This helps get land cover change, but not habitat change.
 - Aerial photograph/LiDAR measures – moderate resolution. This fills in more information on the rivers.

- Field measures – fine resolution. This gives the most specific data.
- The sample site selection was statistically robust: in this case it found urban sites across Puget Sound and spatially distributed the sites. Then they used power analysis to determine sample sizes needed for each stratum in each habitat area, and determined time intervals for site re-visits.
- The four areas of landscape stratification were included in the site selection: glacial, post-glacial, canyons, and mountain valleys.
- When selecting the metrics, they considered the five following questions:
 - Is the metric related to at least one of the Viable Salmon Population (VSP) parameters?
 - Is it sensitive to land management or restoration actions?
 - Is it related to coarser/finer resolution metrics?
 - Is it cost-effective?
 - Does it have a high signal-to-noise ratio?
- Once they collected the data, they tested the metrics for accuracy and also created an error matrix. They found that their map of CCAP land cover classification was not helpful and so will work on building a better map for the next monitoring year.
- The aerial photo data is archived which means it is always accessible. The aerial photos work well, especially when paired with the field measures which ground-truth the information.
- It was noted that there will be some overlap between this work and the work the Puget Sound Partnership is doing for Chinook Monitoring & Adaptive Management.

Recovery Plan Outline – The Recovery Team reviewed the Recovery Plan outline which was last reviewed at the November 2014 meeting.

Short-Term Assignments

1. Review Biological Background section (page 19).
 - a. The Recovery Team revised some of the bullets under this section.
 - b. For the last bullet for NMFS-designated critical habitat, it was noted that Steve Stone is still updating the critical habitat map which might be ready in April 2015.
 - c. It was noted that the Steelhead Distribution Map will be incorporated, though it is a coarse resolution and the Recovery Team may decide to incorporate more details later.
 - d. Team members can start thinking about writing pieces of the Biological Background section now while other sections might take more time.
 - e. It was noted that the Biological Background section does not yet include information about water quantity, though that is important especially for winter spawning and summer rearing.
2. Confirm if Table 1 is up to date (page 22).
 - a. Jeff Hard slightly re-organized the table, which was shown to the Team. Jeff will review the information with Bill McMillan, the original author of the table. The Team agreed to make a note at the bottom of the table explaining that this table has not yet been verified by watershed biologists.
 - b. A Team member suggested that information from WRIAs could inform this table (e.g., the periodicity reports). This would get good information and make sure that local biologists are invited to share data.

- c. If this table should be shared with local biologists to verify information, the Team agreed that the Recovery Goals & Scenarios Workgroup would need the table by the end of February. They suggested re-organizing the table by MPG, and Jeff agreed to verify that Bill McMillan is comfortable using the table with local biologists.
3. Confirm if the map is the official DPS map (page 34).
 - a. The map was updated and generally looked good.
 - b. The Team suggested that three areas be double-checked for accuracy: Nisqually, upper Skagit, and middle fork Nooksack.
 - c. The TRT's maps for the MPGs and DIPs are the best available maps.

Recovery Team Workplan

- The Team noted that they are somewhat behind on earlier stages of the workplan, especially in the recovery plan outline and the Recovery Goals & Scenarios work.
- The Stresses & Pressures Workgroup is falling behind due to constrained capacity. Ed Connor had agreed to take a first pass at summarizing the known information on stresses and pressures, and Ken Currens will plan to offer to help Ed in doing that since that task is large.

Workgroup Progress Reports

Recovery Goals & Scenarios Workgroup

- WDFW has hired the post-doctoral researcher who will be primarily responsible for pursuing the life cycle model to evaluate recovery goals and scenarios. His name is Phil Sandstrom and he comes most recently from Montana where he has been working with Montana State University and the U.S. Geological Survey to describe lake trout spawning behavior. Prior to that, he worked with steelhead in the Central Valley of California, where he used acoustic telemetry to estimate reach-specific survival of juveniles migrating toward the ocean. He will start February 4.
- The workgroup met most recently on January 16 and discussed how best to meet and interact with biologists familiar with steelhead biology and monitoring data in watersheds throughout Puget Sound. They agreed it would be best to have initial meetings at the MPG scale and have the initial focus be on presenting the concepts and soliciting input on the structure of the life cycle model.
- Once Phil is on board, the Workgroup will work with the Puget Sound Partnership to get the word out to the right people for those MPG-level meetings.

Watershed Template Workgroup

- Their immediate next step is scheduling two or three meetings this winter/spring to align with the Recovery Team meetings schedule.
- The workgroup has also considered having a subgroup to discuss the portfolio of elements from the Hood Canal pilot project to make sure that the habitat components are correct and not missing anything.
- The workgroup will incorporate the discussion today on watershed assessments.

Stresses & Pressures Workgroup – No progress to report since the last meeting.

Updates & Wrap-Up

- Susan O’Neil shared that there is exciting progress on the Hood Canal pilot project. One of the priorities identified was to convene local experts in Hood Canal to improve the map layers. Tyson Waldo from the Northwest Indian Fisheries Commission (NWIFC) integrated fish distribution layers from WDFW and NWIFC and a meeting soon will focus on how those two layers can work together.
 - A Recovery Team member noted that local biologists are good at knowing the spawning habitat but not always good at identifying the rearing habitat. Hopefully this will be addressed by the newly-integrated map.
- The next meeting will be Tuesday, February 24. The Partnership could host in Tacoma, stay tuned for the final details.
- Travel reimbursements are available on the Google Drive.
- Any ideas for upcoming agenda topics can be forwarded to Elizabeth Babcock and Claire Turpel.

The meeting adjourned at 2:30pm.

Participants

Participant	Affiliation
Elizabeth Babcock	NOAA’s National Marine Fisheries Service
Tim Beechie	Northwest Fisheries Science Center
Ned Currence	Nooksack
Ken Currens	Northwest Indian Fisheries Commission
Jeanette Dorner	Puget Sound Partnership
Jeff Hard	Northwest Science Center
Steve Hinton	Skagit River System Cooperative
Neala Kendall	Washington Department of Fish & Wildlife
Randy McIntosh	NOAA’s National Marine Fisheries Service
Susan O’Neil	Long Live the Kings
Tristan Peter-Contesse	Puget Sound Partnership
David Price	Washington Department of Fish & Wildlife
Bob Wheeler	Triangle Associates
Claire Turpel	Triangle Associates